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# Report of One Hundred and Sixty Cases of Epilepsy.

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# REPORT OF ONE HUNDRED AND SIXTY CASES OF EPILEPSY.[1]

BY S. G. WEBBER, M.D., BOSTON.

I AM sorry to say that as I look over the records of my cases of epilepsy I find them defective in many points in regard to which I would like to have fuller information. I shall have to give them as I find them, and can only say that sometimes the patients did not know all their own symptoms, and sometimes in the hurry of practice I did not note all that I now wish I had noted. With the loss of many facts which might have been obtained, I think enough is left to make it worth while to collate the symptoms and draw therefrom what lessons they may have for us.

Of the points in regard to which I failed to get as good an account as I might, I am especially sorry that the question of *heredity* has suffered the most neglect. I find that I have data in regard to only 42 patients. Of these 21 had a good history, sixteen had a poor history, and of five the family history was doubtful.

Among the worst cases of family history may be noticed Case 4 (the numbers refer to a private record of the cases and are used as more convenient than initials). His father was subject to headaches; one paternal uncle and a paternal aunt died of apoplexy; his mother was nervous.

Case 8. Father had small-pox before his marriage, dyspepsia after, rheumatism, lumbago and sciatica.

[1] Read before the Medico Psychological Society, Boston.

Father's uncle had paralysis; father's brother had a high temper, almost insane; mother was nervous when a child; mother's sister and brother both had convulsions in infancy, but were healthy afterwards; mother had three other children, all healthy. While pregnant with the patient his mother lived in the house with the father's brother, and saw frequent outbursts of anger on his part.

Case 10. Father's family were consumptive. Father was troubled in his head since concussion from cannon in the army; he had crazy fits. Father's father died of paralysis, was often intoxicated; mother's health was not good after his older brother's birth; she had heart trouble; head troubled her; and she was nervous. Mother's father was troubled with headaches; lost power in his hand and limbs, and was crazy; mother's father's father was insane; mother's mother had paralysis. Mother's two brothers and two sisters are troubled with their head when anything is the matter with them; one brother has a tumor in the back of his eye. Mother's cousin had paralysis.

Case 11. Father used to have headaches; mother used to have neuralgia. Mother's father and brother died of apoplexy; mother's grandfather was insane. A brother has headaches; one sister is not nervous.

Case 58. Father's uncle had epilepsy; father's aunt had sick-headaches. Grandfather had apoplexy. A cousin on the mother's side had epilepsy. Mother belongs to a tuberculous family. This patient was married the day after his first attack.

Case 74. Mother had convulsions in infancy. A sister and brother died in convulsions; another sister had convulsions.

Case 94. Father's mother had fits. Mother's brother had fits when eighteen years old. Patient's brother had fits beginning at eighteen.

Case 97. Maternal great-aunt had paralysis; maternal grandmother and aunt were insane. Older brother had a temporary paresis of one leg. Mother's father's family inclined to be weak on the left side.

Case 110. Father had fits when a boy, and later had bilious headaches. Father's brother had fits. Father's sister had fainting-turns; another sister had fits when young, and her children had them when young.

Case 154. mother's brother is very nervous; another brother has fits. Mother's cousin has fits. Mother's father is very nervous; mother has sick-headaches.

These are the most striking instances of family taint. Many other cases showed the presence of one or two members in the family who had some nervous tendency or epilepsy. Convulsions or epilepsy were present in ancestors in nearly half the cases with hereditary taint.

As to sex, there were 102 males, and 60 females among my patients. This does not agree with the proportion found by Gowers, but is in accordance with the statistics gathered by Althaus.

Epilepsy is a disease of *childhood* and *youth*. The first attack occurs most frequently between the ages of one and twenty, or thirty.

The decade between ten and twenty is that in which the largest number of cases originate, but few cases commence after thirty.

Of those in which the disease began after thirty, three were caused by syphilis, four by injuries of the head, three by acute disease or stomach trouble, three the cause was unknown; the others were caused by sunstroke, bad habits, nephritis, onanism, pelvic tumor and possibly cerebral tumor.

The oldest age at which epilepsy has shown itself is

sixty-eight, caused by two sunstrokes; there was one case at fifty-seven and one at fifty-eight; all the other cases are under fifty.

Thirty-six patients had fits when infants, and later in life the convulsions began again and continued as in epilepsy beginning later. In seventy cases there were no such attacks in infancy; and in fifty-six cases it is not recorded whether they had such attacks or not.

Nine cases had convulsions when less than three years old and continued to have them from that time on. These are not included among those who had fits when infants, the epileptic attacks appearing later in life.

It will be seen that only a small proportion of the patients had convulsions during the first dentition.

| | |
|---|---|
| Under 1 year | 3 |
| 1 to 5 years | 21 |
| 5 to 10 years | 19 |
| 10 to 15 " | 29 |
| 15 to 20 " | 26 |
| 20 to 25 " | 11 |
| 25 to 30 " | 13 |
| 30 to 35 " | 10 |
| 35 to 40 " | 5 |
| 40 to 45 " | 3 |
| 45 to 50 " | 3 |
| 50 to 55 " | 0 |
| 55 to 60 " | 2 |
| 60 to 65 " | 0 |
| 65 to 70 " | 1 |
| Adult | 1 |
| Unknown | 15 |

Of *exciting causes*, as given by the patients or their friends, the larger number of cases were due to injury to the head. Among these are included many cases of comparatively slight injury; it is probable that only a small proportion of these were serious enough to produce any organic change in the brain and in many

cases it is doubtful whether the injury had any causative influence. In one case the attacks did not appear until twenty-one years after the injury; in another there was an interval of five years after a fall which did not produce insensibility; others were slight falls occurring near the time the disease began, probably not more severe than many other persons have with no bad result.

Overheating is the next most frequently occurring cause. There was not a fully developed sunstroke, generally there was simply an overheating. In one or two cases this had occurred twice.

Indigestion was given as a cause by patients or their friends only seven times, a smaller number than I should have supposed would be the case. It is not certain that this was the real cause of the attacks in even all these cases. It was clearly the cause in one patient who was camping out with companions, who had not calculated correctly in regard to their provisions, and found themselves with nothing to eat but cheese for two or three days. The first attack occurred immediately after this experience. It is instructive that no other of the party had such attacks, showing clearly that behind the exciting cause there must be an individual peculiarity, which serves as the foundation on which the disease is built.

Five of the cases of syphilis were either cured or materially benefited. In one case the result is not known. It is possible that in these there was some organic change in the brain.

Of the four cases in which the teeth are mentioned as the cause of the disease, none were infants; they were from eleven to twenty-two years old when they had their first attack. In one case the teeth were defective and came irregularly. In the other cases there was an irritation of gums as is seen in infants.

CAUSES OF EPILEPSY.

| | |
|---|---|
| Injury to head | 24 |
| Injury to other parts | 3 |
| Overheating | 11 |
| Indigestion | 7 |
| Fright | 6 |
| Acute disease | 6 |
| Syphilis | 6 |
| Teeth | 4 |
| Hard work and hardship | 3 |
| Phymosis | 3 |
| Onanism | 2 |
| Pregnancy | 2 |
| Bad habits | 1 |
| Lead | 1 |
| Bathing too long | 1 |
| Pelvic tumor | 1 |
| Possibly cerebral tumor | 1 |

In Case 153 pregnancy seemed to be the chief exciting cause, as the attacks occurred at that time and were absent at other times. She had no fits as a child. She was married the second time in January and in July had an attack in which she called to her husband, "Oh! dear! don't leave me!" Then she had a slight spasm, may have been unconscious for a few seconds. She had no nausea, and thought that these attacks took the place of the usual nausea. During her second pregnancy she again had the attacks which ceased at the third month. After the birth of her second child she had a series of attacks just before the catamenia began. In one of the attacks during the third pregnancy she fell on the piazza and as result had a miscarriage. About three weeks before the birth of the next child she overworked mentally and had an attack in which the right side was paralyzed and she had aphasia for about a week and later she stuttered and could not write as she could not spell. She recovered from this condition. In Case 118 the first attack may have been due to albuminuria during pregnancy, and

later she had a mental shock which seemed to be the exciting cause of subsequent attacks.

An *aura* was felt habitually in 62 cases; occasionally in 10. It was absent in 28 cases.

An aura is sometimes felt when there is only the petit-mal, though it is then often difficult to separate it from the petit-mal. The petit-mal may form the aura when the grand-mal is developed. In most cases the minor attacks occur without warning and the aura is felt only when there is a major attack.

In one case the patient had warning the day before an attack by feeling badly and crying in the evening. In another case there were chills running down the left arm three or four days before the attack. Another had a sense of faintness the preceding day; yet another felt badly in his head with impaired memory for a day or two previous to the epileptic fit. Generally, however, the warning was only a few seconds or minutes previous to the attack, in some cases an hour or so.

The sensations which form the aura are very varied, they may be felt in any part of the body.

In the table the total is not the same as given above, as some patients have two sensations occurring together for an aura: hence they would be counted twice.

AURA IN SEVENTY-TWO CASES.

| | |
|---|---|
| A dizziness or sense of uncertainty as to position | 9 |
| Sensations in various parts of the body | |
| Head and face | 8 |
| Stomach | 6 |
| Arms | 2 |
| Heart | 2 |
| Throat | 1 |
| General | 1 |
| Special senses | |
| Sight | 4 |
| Smell | 1 |
| Sensation of cold or a chill | 7 |

| | |
|---|---|
| Cramps | 3 |
| Nausea | 2 |
| Sleepiness | 2 |
| Hunger | 1 |
| Dyspnœa | 1 |
| Languor | 1 |
| A lost feeling | 1 |
| A surging feeling, not a thought | 1 |
| A surging feeling | 1 |
| Mental sensation, not a thought | 1 |
| Unpleasant sensation | 1 |
| As if clothes would drop off | 1 |
| Motion, twitching or trembling | 5 |
| Rapid swallowing | 5 |
| Two movements of bowels near together | 1 |
| Paleness | 1 |
| Palpitation | 1 |

In some cases of *petit-mal* the patient is clearly unconscious during the petit-mal, and the attack approaches very near to the grand-mal; in other cases the petit-mal is of a very insignificant type, and strangers may not recognize it. One of my patients, a boy, would frequently have an attack while riding his bicycle, and had no trouble in continuing his ride. He did not fall nor show signs of having the attack; yet he lost consciousness for a brief interval of time, and himself knew that it was so.

Many times the petit-mal will for several years be the only manifestation of the disease; and then the grand-mal will appear, at first only occasionally, later more frequently, until it comes to be the chief factor. It is often difficult to persuade friends that the petit-mal, so simple and apparently inoffensive a phenomenon, is the first sign of a very grave and serious disease. Patients or their friends ought to be warned as to the serious nature of these seemingly insignificant attacks, as it is desirable in some cases to prepare for the future, to take measures to prevent marriage, to choose an occupation for life, or a dwelling-place; to

decide a number of questions, for which it is necessary that the truth should be known. If the patient is properly warned and instructed as to the nature of his trouble, he will soon become used to the idea that he is an epileptic, and while not perhaps reconciled to his lot, he will be thankful that he knows it and can govern himself accordingly.

In many cases there seems to be no loss of consciousness in the petit-mal; but if the attack is carefully observed, it will generally be found that there is at least a momentary loss, though it may be of such short duration as to be overlooked, or that the patient does some automatic act which deceives the observers into thinking that consciousness is retained.

Case 18, a girl, thirteen years of age, seen December, 1873, when seven years old was struck on the back of her head by a stone. Some two years or more after, she had attacks when she would complain of being cold, then her left hand and leg and left side of her face would work; this would last a few minutes, and she would be all over it. She had these twice a week at first, or sometimes more frequently. Her mother said there was no loss of consciousness in the attack; yet on coming out of it she did not remember what had happened. It is probable that the friends were deceived, and because she could answer questions thought that there was no loss of consciousness, not realizing that the answers were automatic, the questions being very simple.

Case 8 is another one in point. It is that of a girl, five years old, who was seen in 1872. The family history was not very good. She was a quiet baby; when sixteen months old, having four teeth coming togther, she had two convulsions immediately succeeding each other, lasting thirteen hours. She was perfectly healthy after this until she was four years old. After

the first convulsion the right side was paralyzed for about a week.

When four years old she had attacks of dizziness, with seemingly no loss of consciousness; in these she could not speak plainly; the mouth was drawn up; the tongue was as if tied; she ran to her mother, and said, "It is coming on." She knew about half a minute or a minute before that the attack was to occur; after the attack she usually went to sleep. The attack lasted ten seconds or perhaps more; there were no convulsions. At first the attacks were every other day or twice a day; later they occurred about once a week, perhaps two in one day.

She had a spell in my office. She was sitting in her father's lap; she caught his hand, said she was sick; face became pale; there was an anxious look about the eyes and mouth; the eyes were slightly staring. During the attack she answered questions relating to the attack which required only the answer "Yes" or "No"; she did not seem to lose consciousness, yet probably her intelligence was impaired.

This is a case where there was only the petit-mal, and that was of the lightest kind. She received no permanent benefit from treatment. It is an instructive case as showing that these are not by any means the easiest to treat successfully, and that these very slight spells are true epilepsy.

Case 12 shows that the petit-mal may be the only manifestation of epilepsy for some years, and then the major attacks may appear, thus proving the importance of the minor attack and that these mild cases should receive as much care as if they were the more marked form. This patient was much exposed when he was about thirty years old, and after a rheumatic fever had attacks of dizziness once in two weeks or so. These grew gradually worse; and after two or three years

during the attack he had to hold on to something to support himself. About two years after he had his first fit; and after this he had the grand-mal once in four or six months; later, they occurred once a month. During this time he continued to have the same attacks of dizziness as petit-mal.

This man had for two years the minor attacks; then the fully developed major attack appeared with the same petit-mal between; and for thirty years he had these attacks. The question naturally arises, Whether if the true nature of the early petit-mal had been recognized at the very beginning, he may not have been freed from the many years of distress and sense of insecurity?

Case 58 is that of a man, twenty-five years old when first seen. When fifteen years old, he fell down a flight of stairs. At about twenty years of age he had spells of dizziness, with a rush of blood to his head and a sense of pressure therein; no faintness no discomfort after, rarely headache. These attacks recurred about once in six months. Two weeks before I saw him, he had a clammy feeling in his little and ring finger, then a throbbing in the fingers and arm without pain. It was about three minutes from the beginning until the throbbing and the sensation was very disagreeable; then twitching of the little and ring finger, then of all the fingers; and after about a minute the fingers were contracted, the thenar and hypothenar eminences approached; then he lost consciousness; and then the convulsions became general. In the two weeks he had six or seven of these attacks. He had small spots of extravasated blood under the skin of his face.

Case 61 is also one where the attacks of petit-mal were present two years before the grand-mal, and continued after the latter appeared. In this case a woman, nineteen years old, during pregnancy had attacks

of rush of blood to the head for a moment, then a strange quiver, head feeling oppressed and things looking strange. Soon as this passed off, she felt warm and face was flushed; then she was cold and trembling. She had these petit-mal in series every four to eight weeks, two or three an hour all day long. During these she seems not to lose consciousness, or if she does it is only for a second or so. After two years she had a grand-mal in the night; she had another after three years, and again another. In these the blood seemed to settle in the face.

Case 63 is one in which there was only the petit-mal. In six years or more there had been no severe convulsions, the attacks consisting of a bad smell, "a rotten smell in the nose," and a sleepy feeling running down the right arm, and a drowsy feeling after it. He had this sensation two or three times a day.

Case 65 is that of a girl, ten years of age, who at eight years had an epileptic attack, the first one; she had two or three others, the last one when cutting a double tooth. She had also numb spells, which began in the right hand, and if she was then holding anything in her left hand she dropped it, the right hand shook, the head shook and was inclined towards the right. Bromide of potassium was of benefit to her; the numb spells soon stopped; and later, when the tooth was fully through, the grand-mal also stopped. The irritation of the tooth seemed to be the cause of the attacks.

Case 66 is of special interest, because the attacks of grand-mal seemed to cease, and give place to the petit-mal, which had some peculiar characteristics. This boy was four years old when he was first seen. The history then obtained was very brief; when two years old he had convulsions, and twice after that, then again about twelve weeks before I saw him; after the last he was paralyzed in his right hand and arm and right side of his face.

I saw him again seven years later. He had almost entirely recovered the use of his right hand. He had slight attacks, but no real fits. He stood a few minutes, not speaking; then he would run and do some strange thing; for fifteen or twenty minutes he did not seem to know what he did. At one time he would throw things around at people.

Here is a combination of the petit-mal with automatic acts.

Case 73 is a marked instance of the petit-mal changing to the grand-mal after several years. This young man was thirty-six years old when I first saw him. About twelve years previously he began to have dizzy feelings with a disposition to move the bowels, he had to lean against the house to prevent falling, staggered in walking. He had these attacks two or three times a year for four years; then more frequently, every few weeks; they also became more severe; finally he would have three or four a day, and then go several weeks without one. During the attack he was first dizzy, then perspired, would not fall, staggered to the sofa; this lasted a minute; then he would be sleepy, have a nap and headache after.

About ten years after the first attack of dizziness he had a fully developed grand-mal occurring every four to six weeks. He bit his tongue; the blood settled under the skin of his face in spots.

Case 79 had for nine years petit-mal, consisting of attacks in which he would whirl round, then sit down. After nine years he had a convulsion.

Case 124 is that of a young woman, twenty-four years old. At twenty years of age she had bewildered attacks, would be all mixed up, and for an instant could not separate her ideas. "A thought would come to her, and she would try to think it out; then another thought would rush in." This lasted only an

instant. Consciousness was not lost then. Generally she had these turns once a week, though sometimes every day. About a year later she would ask strange questions during the attack, and on recovering did not know what she had said. Sometimes she was sleepy afterwards. A little over three years later she had convulsions.

I have given the details of so many of these cases because it is important that epilepsy should be recognized early and no time be lost in instituting the proper treatment before a vicious habit is formed and the nervous system becomes accustomed to the attacks, when it would be so much harder to cure the patient. If one can ever be cured of this trouble, it is at the outset, before it has become fixed. We should never allow these suspicious cases of petit-mal to pass from our care without warning the friends and advising vigorous treatment.

Twenty-five of my patients had the petit-mal alone; forty-eight had the grand-mal alone; eighty-nine had both.

VARIETIES OF PETIT-MAL.

| | |
|---|---|
| Dizziness or faintness | 33 |
| Momentary unconsciousness | 16 |
| Queer sensations in | |
| Head | 5 |
| Hands and arms | 4 |
| Stomach | 3 |
| Legs and feet | 3 |
| General | 3 |
| Numbness in different parts | 4 |
| Special sense | |
| Sight | 3 |
| Smell | 1 |
| Hearing | 1 |
| Motions in different parts | 24 |
| Nausea and vomiting | 6 |
| Mental | 5 |
| Affection of speech | 4 |
| Rush of blood to head | 2 |

| | |
|---|---|
| Fright | 2 |
| Rapid swallowing | 2 |
| Staring or blank look | 2 |
| Paralysis, or sense of weakness | 2 |
| Rigid all over | 1 |
| Things seem strange | 1 |
| Smothered sensation | 1 |
| Screams | 1 |
| Spits ten or twelve times | 1 |
| Sleepy | 1 |
| Distress | 1 |
| Sensation as if elsewhere | 1 |
| Chill | 1 |
| Undefined | 3 |

It is not necessary to give here a detailed account of the phenomena of the major attack. I will only mention a few of the more interesting peculiarities of my patients.

The severe attacks began with a cry in only a small number of cases, 13; while in 98 it was absent. The cry is not a frequent symptom. In three cases a slight noise was made by the patient at the beginning of the attack, rather like a gurgling in the throat. One patient made this noise just as he had a petit-mal in my office.

Consciousness was lost in all the cases of the grand-mal and in most of the cases of petit-mal. Only about 16 of the patients claimed that they did not lose consciousness, and these were all cases of the petit-mal without the major attacks.

The time in which consciousness was in abeyance varied with the nature and severity of the attack. It may be only a few minutes, or it may be hours, before the patient knows what occurs around him. Consciousness is rarely recovered as soon as the convulsions cease.

Many patients froth at the mouth during an attack. This symptom was present in 28 cases, absent in 99.

Nineteen patients bit their tongue more or less frequently.

Six showed punctate hæmorrhages under the skin, usually of the face, after an attack.

The attacks may occur in groups, several coming near together; then none for an interval of variable length; then another group of several. Generally the intervals between the groups of attacks are of nearly the same length. Sometimes there will be an irregularity, several attacks coming in the interval; sometimes the interval is variable.

The petit-mal is rather more likely to occur thus in groups.

In 15 cases the spasm was unilateral. In three cases the left side was affected with clonic convulsions, while the right side was in a state of tonic spasm.

Several patients had only a few or perhaps only one grand-mal but many petit-mals. Case 49 had two fits at an interval of two years. Case 70 had frequent attacks of grand-mal from the age of twelve to fifteen; then he had four, each at an interval of three years from the preceding.

Case 53 had the petit-mal from the age of seven to fourteen; then she came to this country, was very sea-sick, and had none for three years; then, living in a very unhealthy location, she began to have the grand-mal.

Case 108 had frequent attacks from five to eight years; then none till he was twelve.

Case 41 had an interval of two years without an attack; then they recurred more frequently than before.

Case 40 had convulsions at two and half years, again at thirteen years, and again at nineteen years; after the latter he had petit-mal.

It is possible that some of these had been taking medicine while they were free from the attacks; but it was not so with all.

Case 28 give birth to a child during an attack. She

had several attacks after the birth of two other children.

Some patients think they can prevent a fit; as they express themselves, "they can throw it off," by some act, which requires a great effort. It seems as though the mental effort necessary to accomplish the desired end served to abort the attack. It is not unlikely that the reason many patients do not have an attack in dangerous places is, that the instinctive and perhaps unconscious dread of having one in such places serves to inhibit the attack.

In a few cases of unilateral spasm there was a partial paralysis after the fit on the affected side. The paralysis passed off in most cases, except when it occurred in infants.

Either during or just after an attack some patients perform certain acts which seem to be voluntary, but which are automatic, of which they are not conscious on coming to themselves. Thirteen patients performed these automatic acts. Some acts were very simple, others were more complicated.

Case 28 tried to take off her rings and to unbutton her dress when half over the fit.

Case 4 would sometimes begin to undress; once he began so to do while calling on a young lady in the evening, and on coming to found he had made some progress in removing his clothing.

Case 129 went into her parlor and began to undress; once she did this before company; another time she undressed to her corsets in the kitchen, then went up stairs and went to bed and asleep.

Case 110 left the supper-table, went up stairs as fast as she could, then down again into the pantry and started the water running, said "Feel bad." Her mother led her towards the stairs; then she became rigid.

Case 10 suddenly jumps, runs up stairs and down; if spoken to, gives a saucy answer.

Case 121, in my office, got up and walked round, as if looking at things.

Case 112 jumped out of bed, spit round the room a tough, thick sputa.

Case 120 tried to pick the paper off the wall, talked foolishly. Again he took his banjo, went to the cellar, took an axe, and when a woman tried to stop him he attacked her; she ran off, and then he smashed his banjo. In half an hour he was all right again.

Case 88 tore books, pulled clothes, marked with a pencil.

Case 113 had an idea that one wishing to help him was up to mischief. He started up, went out of doors, thought his friends wanted him to do something he did not wish to. Once when he was making a fire he had an attack, and the next he knew he was in a strange room dressing.

Case 42 for half an hour after an attack wants to get out the window, under the impression that it is a flight of stairs.

Case 22 talks, misplaces words, throws things about, takes hold of people, imagining they are going to strike him, and he tries to strike them. Once he went inside a building where he was at work, and began to pile up wood as if to take home.

It will thus be seen that these automatic acts differ widely in their nature in different patients. Some of them occur during or after the petit-mal, others after light attacks of grand-mal. They do not occur after severe attacks of grand-mal. The medico-legal importance of these acts is evident. In no case was the patient conscious of what he was doing, and had no recollection of what he had done, his knowledge of the acts coming from others or from the effects which he saw afterwards.

The relation of epilepsy to sick-headache is interesting. Fourteen patients had sick-headache in early life and in most of these the headache was less severe, or entirely disappeared when the convulsions commenced.

Case 102 at twenty years of age, twice fell not losing consciousness; after that she had sick-headache with nausea and vomiting, chiefly at the time of her catamenia until about forty-nine years of age. A few years before that they diminished in frequency. At forty-five she had dizzy turns, not severe; after forty-seven more severe. There was no loss of consciousness.

Case 118 had sick-headache from early life. At thirty-two years of age or a little later, she had a severe shock, after which she had the petit-mal: and after that the headaches were less frequent, and less severe.

Case 124 had much headache at school; at about twenty-two years old the headache was much less frequent. At twenty years of age she began to have bewildered turns.

Case 98 had sick-headache with scintillating scotoma, from ten to fifteen years of age; then she had visual phenomena without headache; this gradually left, and she had only one or two headaches in two or three years, one at forty-two years. About forty she began to have petit-mal, and later she had grand-mal.

Case 96, a girl eighteen years old, had always had headache every three or four months, with some pain all the time. The winter I saw her these were less frequent; and in May she had an attack of grand-mal.

Case 83 had sick-headache every month or so till thirty-three; then not so much; and after some teeth were out she had very little. At about forty-three she had petit-mal, and later the grand-mal.

Case 47 had terrible sick-headaches early in life; but after the attacks of petit-mal began, he did not have these. The petit-mal followed an exposure to the sun, merely standing in the sun.

Case 43 had headaches in the morning, which returned in the afternoon, from ten years old; before that she had had chorea. The headache was severe; sometimes she vomited; sometimes was dizzy. She had these attacks every day until she was sixteen. The headache then changed to darting pains of a neuralgic type occurring occasionally and after she had the epileptic attacks these ceased.

Case 162 had sick-headaches once a week from fifteen years of age until the epilepsy set in, at about thirty-six; after which he had only one attack in a year.

As the correlative to these cases in which was headache in early life and the epileptic attacks later, may be mentioned Case 111, a young lady who had convulsions in infancy, recurring frequently until she was seven years old; after which she had sick-headaches, which at the time I saw her were becoming worse.

It will be seen by these cases that there is, as it were, an interchange between the two explosive forms of neurosis; that when the earlier form ceases, its place is taken by epilepsy. It would seem as though the two cannot occur together. The cases are not numerous enough to warrant the statement that sick-headaches are likely to be replaced by epileptic attacks later in life; but we are warranted to be on the watch for any manifestation of epileptic phenomena in patients who habitually have headache and at once institute the proper treatment. I think I saved one such patient from falling into the habit of having the petit-mal at the time when the headaches ceased.

Among irregular and unusual manifestations of epilepsy, may be one in which a cough seemed to have a relation to the attacks similar to petit-mal. The patient was a boy, aged sixteen, when I saw him. He had had a cough every two to four months; he

rarely raised any sputa; the cough lasted two or three weeks. He did not seem to catch cold. About a year before I saw him he had a very bad coughing spell; after which he had a common epileptic attack, lasting only a few seconds; a short time after, he had another fully developed attack in the night. After these attacks he had very much less coughing.

The question whether epilepsy affects the mental powers of the patient is an important one; and the question is often asked. I am sorry that my notes do not give enough information on that point to be of value. In only a few cases is the mental condition of the patient mentioned. My impression is that the mental powers of patients were impaired in only a small proportion of the cases where the disease began after childhood; but where it began in early life, or where the epilepsy followed convulsions in infancy, the mind was much more likely to be affected.

The question which will most interest our patients is in regard to the prospect of relief. What proportion of patients recover, and how many are relieved?

Many of my patients were seen only once. Of sixty from whom I heard more than once, only ten obtained no perceptible benefit from treatment. Four or five recovered who had not had syphilis. Eighteen are recorded as having fewer attacks, two as having less severe attacks (and in these it is probable that the attacks were fewer also). Nineteen are mentioned as having fewer and less severe attacks. Nine are simply recorded as receiving benefit. Two were relieved at first, but afterwards became worse. One of these had fewer and much lighter attacks for several years, before they again became severe. Two died in the status epilepticus, one after being benefited by the treatment.

Those who were helped were in many cases very

much relieved. One went eleven months without an attack; one, who was having spells two or three times a week and sometimes two or three a day, had only one in two months; another, having four attacks in four weeks, had only three in three years; another, having petit-mal several times a day and the grand-mal every two weeks, had the latter only three times in a year and the petit-mal was reduced to about three a week. Others report no fits for two, three or five months. One patient went five months, then had one; then he went six months without. One reports that when he takes the medicine he has few or no fits; went eight months without any.

Case 137 went two years without an attack; then he had one, having had no medicine for over a year.

Case 60 came to me when eighteen years old, having had thirteen epileptic fits in the previous two and a half years. The cause seemed to be overheating, indigestion and hard study. As petit-mal, he was frequently confused for half an hour.

Three months after I saw him he had an attack; a year later he had another; and four months after, a third. It was two years and eight months before he had the fourth; and since then he has had none, having been ten years without an attack.

This patient was very careful in regard to his diet, exercise, studies and devotion to business; he would undertake no new enterprise, would not go to the country, would make no change in his habits without consulting his physician. Much of the success of his treatment is owing to this carefulness.

Case 132 had no attack after I saw him for six months, when he ceased coming to me.

Case 108 had a fit on December 8, 1882; then two slight spells, not severe fits, more like petit-mal, about the first of February, and a very slight one in June,

1883; and after that none for five years, since which I have not seen him.

Another patient with phymosis was circumcised; and while the wound was sore had an increase of attacks, up to eighty a day. When he had healed, these ceased; and for many months he had none. He has not been seen since.

A little girl had trouble with her second teeth, a double tooth pressing on the gum. This was remedied and the fits ceased. She was seen for several months, and had no attacks.

In the treatment of epilepsy I have found nothing better than the bromides; indeed, these salts have done so well that I have made only a few trials with other remedies. I give at least ten grains three times a day to adults from the first; in many cases I begin with fifteen. The drug is increased rapidly, according to the frequency and severity of the attacks, until an impression is made upon them or there are symptoms of bromidism. With the bromide I always combine iodide of potassium, giving five grains three times a day. If there is a history of syphilis, the iodide is given in much larger doses. The patient who did the best, had ninety grains of bromide a day for several years, four or five, with no unfavorable effect.

I always give iron in some form with the bromides to counteract any tendency to anæmia caused by the drug. When the bromides cause much acne I give arsenic (a few drops of Fowler's solution) after meals.

The diet is very important. I forbid the use of meat, allowing any other wholesome food. I found one of my patients several years ago was not doing well, and directed that no meat should be eaten; he immediately did much better. I have had a similar experience since in other cases; and now I always give this direction.

It is not easy to keep patients to this treatment and diet. One patient was doing very well, had done well for some years, but found the bromides so repulsive that he could not continue with them, and gave up the treatment. He had the attacks again, but I do not know with what frequency.

Of course, any condition acting as a cause of the fit, should be corrected, as phymosis, irregular or irritating teeth.

It will be seen from the accounts given of some of the patients that it is not safe to leave off the treatment very soon after the attacks cease, as there is a liability that they may return. In one of my patients they returned two years after they had ceased, and one year after the medicine had been omitted. It is not easy to induce a patient to continue taking medicine which seems to be unnecessary for so long a time.